

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A disk drive comprising:

an optical head configured to emit a laser beam so as to illuminate a disk-shaped storage medium thereby writing or reading data on or from the disk-shaped storage medium, grooves serving as recording tracks being formed in a wobbling fashion on the disk-shaped storage medium, pre-pits being formed on lands between adjacent grooves, and the disk-shaped storage medium representing, using the pre-pits, address information indicating an address on the disk-shaped storage medium;

a push-pull signal generator configured to generate a push-pull signal from reflected-light information detected by the optical head;

an amplitude variation signal generator directly connected to the push-pull signal generator and configured to generate and output a fundamental amplitude variation signal indicating the fundamental amplitude variation of the push-pull signal, wherein the amplitude variation signal generator includes:

a charging circuit for charging a capacitor in response to an increase in amplitude of the input push-pull signal, in a peak holding manner with a predetermined limited rising-up time constant, and

a discharging circuit for discharging the capacitor such that the changed voltage of the capacitor falls down with a predetermined limited falling-down time constant whereby a signal corresponding to the charged level of the capacitor is output as the fundamental amplitude variation signal;

an offset signal generator configured to generate an offset signal;

a reference signal generator connected to the amplitude variation signal generator and to the offset signal generator and configured to generate a reference signal by adding the

offset signal received from the offset signal generator to the fundamental amplitude variation signal received from the amplitude variation signal generator; ~~and~~

a pre-pit detector directly connected to the push-pull signal generator and to the reference signal generator and configured to compare the push-pull signal with the reference signal and outputting a comparison result as a pre-pit detection signal; and

an address decoder for acquiring address information represented by the pre-pits, from the output of the pre-pit detector.

Claim 2 (Canceled).

Claim 3 (Original): A disk drive according to claim 1, wherein the fundamental amplitude variation signal is a signal reflecting at least the amplitude variation of the push-pull signal due to wobbling of grooves and due to noise.

Claim 4 (Canceled).

Claim 5 (Currently Amended): A disk drive comprising:

an optical head configured to emit a laser beam so as to illuminate a disk-shaped storage medium and detecting light reflected from the disk-shaped storage medium thereby writing or reading data on or from the disk-shaped storage medium, grooves serving as recording tracks being formed in a wobbling fashion on the disk-shaped storage medium, pre-pits being formed on lands between adjacent grooves, and the disk-shaped storage medium representing, using the pre-pits, address information indicating an address on the disk-shaped storage medium;

a push-pull signal generator configured to generate a push-pull signal from reflected-light information detected by the optical head;

an amplitude variation signal generator directly connected to the push-pull signal generator and configured to generate and output a fundamental amplitude variation signal indicating the fundamental amplitude variation of the push-pull signal, wherein the amplitude variation signal generator includes:

a charging circuit for charging a capacitor in response to an increase in amplitude of the input push-pull signal, in a peak holding manner with a predetermined limited rising-up time constant, and

a discharging circuit for discharging the capacitor such that the changed voltage of the capacitor falls down with a predetermined limited falling-down time constant whereby a signal corresponding to the charged level of the capacitor is output as the fundamental amplitude variation signal;

an offset signal generator configured to generate an offset signal;

a reference signal generator connected to the amplitude variation signal generator and to the offset signal generator configured to generate a reference signal by adding the offset signal received from the offset signal generator to the fundamental amplitude variation signal received from the amplitude variation signal generator; ~~and~~

a pre-pit detector directly connected to the push-pull signal generator and to the reference signal generator and configured to compare the push-pull signal with a reference signal and outputting a comparison result as a pre-pit detection signal; and

an address decoder for acquiring address information represented by the pre-pits, from the output of the pre-pit detector.

Claim 6 (Original): A disk drive according to claim 5, wherein

the disk-shaped storage medium represents, using the pre-pits, address information indicating an address on the disk; and

the disk drive further comprising an address decoder for acquiring address information represented by the pre-pits, from the output of the pre-pit detector.

Claim 7 (Original): A disk drive according to claim 5, wherein the fundamental amplitude variation signal is a signal reflecting at least the amplitude variation of the push-pull signal due to wobbling of grooves and due to noise.

Claim 8 (Original): A disk drive according to claim 5, wherein the amplitude variation signal generator includes

a charging circuit for charging a capacitor in response to an increase in amplitude of the input push-pull signal, in a peak holding manner with a predetermined time constant; and

a discharging circuit for discharging the capacitor such that the charged voltage of the capacitor falls down with a predetermined time constant;

whereby a signal corresponding to the charged level of the capacitor is output as the fundamental amplitude variation signal.

Claim 9 (Currently Amended): A method of detecting pre-pits formed on a disk-shaped storage medium, grooves serving as recording tracks being formed in a wobbling fashion on the disk-shaped storage medium, address information being represented by the pre-pits formed on lands between adjacent grooves, the method comprising the steps of:

generating a push-pull signal from reflected-light information obtained when the disk-shaped storage medium is illuminated with a laser beam, the disk-shaped storage medium

representing, using the pre-pits, address information indicating an address on the disk-shaped storage medium;

generating and outputting a fundamental amplitude variation signal, indicating the fundamental amplitude variation of the push-pull signal based directly on the push-pull signal, using a circuit that serves as a peak hold circuit with a limited rising-up time constant in a charging operation and also serves as a discharging circuit with a limited falling-down time constant in a discharging operation;

generating a reference signal by adding an offset signal to the fundamental amplitude variation signal; ~~and~~

comparing the push-pull signal with the reference signal and outputting a comparison result as a pre-pit detection signal; and

acquiring address information from the pre-pit detection signal.

Claim 10 (Original): A pre-pit detection method according to claim 9, wherein the fundamental amplitude variation signal is a signal reflecting at least the amplitude variation of the push-pull signal due to wobbling of grooves and due to noise.

Claim 11 (Original): A pre-pit detection method according to claim 9, wherein the amplitude variation signal is produced by

charging a capacitor in response to an increase in amplitude of the input push-pull signal, in a peak holding manner with a predetermined time constant;

discharging the capacitor such that the charged voltage of the capacitor falls down with a predetermined time constant; and

outputting a signal corresponding to the charged level of the capacitor as the amplitude variation signal.